

Reply Comments Supporting Adoption of WT Docket 16-239

By John E. Hendricks

In the matter of the Notice of Proposed Rulemaking WT Docket 16-239, NPRM-11708 that proposed amending Part 97 of the Commission's Rules and Regulations.

I have filed comments early in this proceeding and would like to offer a reply to the misrepresentations that have occurred in subsequent filings. I am a retired Registered Professional Communications Engineer and have been an Amateur Radio operator for over 50 years operating CW, SSB, PSK-31, Packet, RTTY, Winmore and Pactor-3. I am presently an Extra Class licensee with the call sign K7JLT and an ARES/RACES technical resource for Oregon Emergency Management (OEM).

Pactor-3 was developed in 2000, in 2007 the State of Oregon purchased and deployed Pactor-3 modems to every county in Oregon for use in emergencies. Pactor-3 requires an audio pass-band from **400 Hz to 2600 Hz**. The occupied bandwidth at the -40 dB points is **2.4 kHz** (from 300 Hz to 2700 Hz), Pactor-4 requires the same bandwidth it just sends more data within this bandwidth. Pactor-4 is being used by Canada and Mexico today. I have monitored the distinctive Pactor-4 transmissions of Canadian stations and observed that Pactor-4 does not require more bandwidth than Pactor-3. In 15 years of use, Pactor-3 has not overwhelmed the bands and should not be expected to grow to that point when Pactor-4 is implemented. Pactor-4 will allow for shorter transmissions (higher data through-put) creating less interference potential. Over half of the comments against the elimination of the existing symbol rate limitation are misrepresenting the bandwidth needed by Pactor-4 as something new that will overrun CW, RTTY and narrow band data frequencies. The bandwidth needed for Pactor-4 is not new and will not consume the frequency space used by other modes!

Many of the petitions calling for rejection of the FCC's proposal complain that Pactor automatic stations are transmitting when the band is occupied. In the past automatic stations advertised their presence by transmitting without being called, a practice that is no longer required. Pactor stations advertise their presence by being on list that software uses to show their availability. Automatic Pactor stations monitor several different frequencies on different bands, a single frequency at a time and do not transmit until they can detect that they are being called. An occupied channel will prevent detection from happening. At OEM the Pactor station operator uses a Panadapter (Visual Spectrum Display) to check to see if a channel has been recently occupied before transmitting. An unoccupied channel is needed to maximize data throughput. If during a Pactor session disruptions occur the message throughput is

slowed and the operator terminates the session and moves to a new frequency. A Pactor automatic station that loses internet connectivity may be configured to transmit without being called so it can forward held traffic. This occurrence is rare and as a general rule I only send traffic to automatic stations that indicate they have an internet connection because it takes too long for a message to reach the destination if they do not have an internet connection. I have operated the bands extensively using CW and narrow bandwidth data modes and have found only a very small amount of interference caused by automatic Pactor stations, other forms of disruption are much more common. As always, good operating practice reduces interference but I believe that interference can never be totally eliminated.

Some of the petitions state that Emergency Communications should use RTTY, Voice or CW modes to carry the traffic. During the recent Cascadia Rising Emergency Exercise 200 pages of emergency traffic was handled in a 4 hour period. This volume of traffic would have taken over 20 hours using the proposed modes. Pactor-3 sessions totaling 120 minutes were needed to handle the Exercise traffic at OEM, the total time needed could have been shortened with Pactor-4.

I have no objection to establishing a 2.4 KHz or wider bandwidth limitation. A narrower limitation than 2.4 KHz would greatly impede the flexibility we currently enjoy in emergencies. Today non-emergency Pactor operation is mainly confined to the Automatic operation sub-band defined by FCC Rule and Regulation (R&R) 97.224. Chopping up the bands into multiple narrow bandwidth sub-bands as some comments suggest would unreasonably restrict emergency operations. It has not been necessary to chop up the voice segments of the bands to separate AM, Extend Sideband, Double Sideband, Slow Scan and Digitized Voice signals so I believe there is no real need to do it in the lower frequency segments of the bands.

We can't predict when a catastrophe event the size of a Cascadia Subduction Zone Earthquake will occur. Geologists predict that this type of event is overdue and the resulting magnitude 8.5 earthquake will cause a wide corridor of destruction between Northern California and Southern British Columbia. Amateur radio's capability to transfer message traffic to foreign automatic stations out of the destruction area (stations that are not restricted by FCC R&R 97.224) and/or the ability to operate station-to-station outside the automatic sub-bands will be necessary to carry the volume of traffic that can be expected.

Adoption of WT Docket 16-239 is necessary to remove the baud rate restriction so data capabilities can evolve from Pactor 3 to Pactor-4. This evolution will not cause additional new interference to other modes as has been misrepresented by many commentators.